

Conference Report

Abstracts of the 25th International Colloquium on Animal Cytogenetics and Genomics (25th ICACG), 26–29 June 2024, Naples, Italy

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1. Introduction

The 25th International Colloquium on Animal Cytogenetics and Genomics is dedicated to the memory of Dr. James (Jim) Womack, a pioneer in gene mapping, especially in cattle. The meeting opened with an obituary presented by Prof. Penny Riggs, a former student at Texas A&M University (TAMU) and now a professor in the same department.

The meeting was organized into 10 sessions, beginning with General Opening Session 1, which featured three main lectures highlighting the fields of animal cytogenetics and genomics. As expected, among the 83 accepted abstracts for publication, those related to animal genomics were more prevalent than those focused solely on cytogenetics. However, several abstracts combined the two disciplines (Cytogenomics) to provide a deeper understanding of animal genomes and to better identify latent chromosome abnormalities related to fertility. Various genomic approaches were reported in several abstracts, aimed at improving the selection of animals for productive traits, disease resistance, and animal biodiversity.

Given the numerous abstracts on water buffalo (river type), a specific session was dedicated to this species, which is particularly important in Eastern, South American, and Mediterranean countries. Nonetheless, research on a wide range of animal species, including domestic and non-domestic animals, non-mammalian vertebrates, and invertebrates, was also presented. Special attention was given to the posters, which were displayed throughout the meeting. Additionally, 15 of the posters, selected by the chairpersons of the poster session, are presented and discussed on the final day. Five posters received awards. All abstracts underwent peer review, and only a few required corrections or modifications. In conclusion, the colloquium featured 13 lectures (L), 27 oral communications (O), and 43 posters (P). Each presentation was numbered according to the congress program. Special thanks to the editorial staff of the “Biology and Life Science Forum” journal for their assistance with the abstract’s review and editing.

2. Dr. James (Jim) Womack Obituary

O1—Gene Mapping Is Good for You!—Remembering Dr. James E. Womack

Penny K Riggs and Womack Lab Former Students

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A true pioneer in the field of comparative animal genomics, Prof. Jim Womack (30 March 1941–13 August 2023) is remembered for his remarkable career, scientific achievements, and mentorship of 50 doctoral students and countless additional graduate students, post-doctoral scientists, and visiting scholars. Jim completed a Bachelor of Science degree at



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In conclusion, the study highlights the importance of understanding the impact of environmental stress on telomere length in goats and suggests that managing environmental factors such as dew point and relative humidity could potentially mitigate the negative effects of stress on animal health and productivity.

7.5. P24—Comparative Analysis of Mulberry Leaf-Based Diet vs. Conventional Diet on Sister Chromatid Exchange (SCE) in Rabbits

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This study investigates the impact of a mulberry leaf meal (MLM)-based diet compared to a conventional diet on sister chromatid exchange (SCE) in rabbits. Mulberry leaves are renowned for their rich nutrient content and potential health benefits. Rabbits are an ideal model for studying dietary effects due to their sensitivity to nutritional changes. The Sister Chromatid Exchange assay is used as a sensitive marker for genotoxicity, assessing the frequency of SCEs indicative of DNA damage.

A total of 140 Hycote × Grimaud crossbred rabbits (42 days old) were allotted to two dietary treatments (5 cages/group, 14 rabbits/cage). Animals received the same post-weaning feed (42–63 days), but two different finishing feeds (64–90 days): (1) control diet (C), containing 85% commercial feed, 8% alfalfa meal, and 7% barley meal; and (2) experimental diet, containing 85% commercial feed, 10% MLM, 4% barley meal, and 1% soybean meal. A total of 30 rabbits (15/diet) were slaughtered at 90 days of age. Peripheral blood was individually collected. Lymphocyte cells were cultured in vitro for conventional (normal cultures) and 5'-bromodeoxyuridine (BrdU) incorporation, the latter added 24 h before harvesting at a final concentration of 10 µg/mL to obtain preparations for the SCE test. Staining was performed for 10 min with acridine orange (0.01% in buffer phosphate), then slides were mounted in P-buffer.

A comparative evaluation of SCE frequencies between the two dietary groups provides insights into the potential genotoxic effects associated with each diet. Therefore, 891 metaphases were analyzed and 5685 SCEs counted. Statistical analysis using the independent Student's *t*-test showed no significant differences ($p = 0.703$) in SCE frequency between the control (6.42 ± 0.15) and case group (6.34 ± 0.13) at the end of the test. These findings suggest that the mulberry leaf-based diet does not induce greater genotoxicity compared to the conventional diet. The results of this study contribute to understanding the potential health implications of incorporating mulberry leaves into animal diets. In fact, mulberry leaves are rich in nutrients, antioxidants, and bioactive compounds, potentially improving nutrition, supporting digestion, providing antioxidant protection, aiding weight management, and contributing to disease prevention.

8. Session 6—Cytogenetics and Genomics of Non-Mammalian Vertebrates

8.1. L10—Billfish in the Mediterranean Sea: Genetic and Tagging Approach to Studying Large Pelagic Fish

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